

Appl. No. 10/774,326
Amdt. Dated December 11, 2006
Reply to Office Action of July 12, 2006

Attorney Docket No. 81846.0035
Customer No.: 26021

Amendments to the Drawings:

The attached sheet of drawings includes changes to FIG. 2 to delete reference sign 6a, replacing the original FIG. 2 sheet.

Attachment: Replacement Sheet

Annotated Sheet Showing Changes

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REMARKS

This application has been carefully reviewed in light of the Office Action dated July 12, 2006. Claims 1, 4, 5, 7, 13-17 and 21-24 remain in this application. Claims 1, 7, 13 and 17 are the independent Claims. Claims 1, 7 and 13-17 have been amended. It is believed that no new matter is involved in the amendments or arguments presented herein. Reconsideration and entrance of the amendment in the application are respectfully requested.

Claim Language Suggestions

On page 2 of the Action, the Examiner suggested adding the term "having a trough section" after the term "trough-side surface" at line 9 of Claim 1 and after the word "surface" at line 10 of Claim 1. In response, Claim 1 has been amended accordingly.

Drawing Objections

On page 2 of the Action, the drawings were objected to under 37 CFR 1.84(p)(5). In response, FIG. 2 has been amended to address the above objection. Reconsideration and withdrawal of the objection are respectfully requested.

Claim Objections

Claim 1 was objected to because of an informality. In response, applicant has amended the claim to address the objection. Reconsideration and withdrawal of the above objection are respectfully requested.

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Non-Art Based Rejections

Claims 13-17 were rejected under 35 U.S.C. § 112, first paragraph, failing to comply with the written description requirement. Claims 13-17 were rejected under 35 U.S.C. § 112, second paragraph, for indefiniteness. In response, Claims 13 and 17 have been amended to overcome the above rejections. Reconsideration and withdrawal of the above rejections are respectfully requested.

Art-Based Rejections

Claims 13-17 were rejected under 35 U.S.C. § 102(b) over JP 2000-226908 (Hiroshi); Claim 7 was rejected under 35 U.S.C. § 102(b) over JP 11-200561 (Yoshitaka); Claims 1, 4, 5, 7, 21 and 22 were rejected under 35 U.S.C. § 103(a) over Yoshitaka in view of U.S. Patent No. 6,525,264 (Ouchida); Claims 23 was rejected under 35 U.S.C. § 103(a) over Yoshitaka in view of Ouchida and EP 1071139 A2 (Nakazima); Claim 24 was rejected under 35 U.S.C. § 103(a) over Yoshitaka in view of Ouchida and JP 2000-174313 (Masahiro).

Applicant respectfully traverses the rejections and submits that the claims herein are patentable in light of the clarifying amendments above and the arguments below.

The Hiroshi Reference

Hiroshi is directed to a solar battery module fixed to base material of roof tile. A nail secures the roofing tile to the roof. (*See Hiroshi, Abstract; FIG. 2*).

The Yoshitaka Reference

Yoshitaka is directed to a photocell mounted within a recess formed below the uppermost surface of a cell frame. (*See Yoshitaka, Abstract; FIG. 2*).

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The Ouchida Reference

Ouchida is directed to a thin-film solar cell module. The thin-film solar cell module of a light transmission type includes a light-transmissive substrate, a front electrode layer, a photovoltaic conversion layer and a rear electrode layer. (*See Ouchida, Col. 3, lines 16-30.*)

The Nakazima Reference

Nakazima is directed to mounting a photovoltaic cell module to a tile body. (*See Nakazima, Abstract; Paragraphs [0019]-[0022].*)

The Masahiro Reference

Masahiro is directed to a solar cell module that enables a worker to stand on the module when the worker installs and fixes the module. (*See Masahiro, Abstract.*)

The Claims are Patentable Over the Cited References

The present application is generally directed to solar cell technology for building applications.

Claim 1:

As defined by amended independent Claim 1, a solar cell module includes a base member. A solar cell is provided on an uppermost surface of the base member such that a lower surface of the solar cell is positioned above and is mounted to the uppermost surface of the base member. An insulating support member is provided on a lower surface of the base member and configured to be laid together with tiles on the roof of a building. The base member is rectangular and includes a ridge-side

surface projecting downwards with respect to a surface of a roof panel for mounting the solar cell module, an eaves-side surface, a trough-side surface and an anti-trough side surface. The solar cell module includes a projecting part provided on the trough-side surface and the anti-trough side surface of the base member, along the ridge-side to the eaves-side of the roof, and configured to overlap a trough-section of an adjacent tile or the through section of an adjacent solar module.

The applied references do not disclose or suggest the features of the present invention as defined by amended independent Claim 1. In particular, the applied references does not disclose or suggest "a solar cell provided on an *uppermost surface* of the base member such that a lower surface of the solar cell is positioned above and is mounted to the *uppermost surface* of the base member," as required by amended independent Claim 1.

In FIG. 2, Yoshitaka discloses tarpaulin 5 mounted to the uppermost surface of cell frame 1. Photocell 2 is mounted within a recess formed below the uppermost surface of cell frame 1. As clearly shown, the recess comprises fixed slot 3, which is formed below the uppermost surface of cell frame 1. Since there can be only a single uppermost surface, the portion near reference sign 3B cannot be an uppermost surface of cell frame 1. Accordingly, any surface mounted to fixed slot 3B is positioned below the uppermost surface of cell frame 1. FIG. 2 does not show photocell 2 mounted to the uppermost surface of cell frame 1.

In contrast, the present invention requires that a lower surface of the solar cell is positioned above and is mounted to the uppermost surface of the base member. As shown in FIGS. 1-3, the present invention discloses that solar cell 10 is positioned above and is mounted to the uppermost surface of base member 1. This allows solar cell 10 to be easily mounted to base member 1. Yoshitaka does not

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disclose this feature. The present invention does not disclose or suggest that solar cell 10 is positioned and mounted within a recess formed below the uppermost surface of base member 1.

Thus, Yoshitaka does not disclose or suggest this feature of the present invention as required by amended independent Claim 1, and the ancillary references do not remedy the deficiencies of Yoshitaka.

Since Yoshitaka does not disclose or suggest each and every element of independent Claim 1, the applied references cannot anticipate Claims 4, 5 and 21-24 dependent thereon. The rejection under 35 U.S.C § 103(a) of Claims 1, 4, 5, 21 and 22 in view of Yoshitaka and Ouchida, Claim 23 in view of Yoshitaka, Ouchida and Nakazima, and Claim 24 in view of Yoshitaka, Ouchida and Nakazima should be withdrawn.

Claim 7:

As defined by amended independent Claim 7, a method of laying solar cell modules together with tiles on the roof of a building includes laying a separate waterproof member having approximately the same height and length as the tiles and a width narrower than that of the tiles between each solar cell module and one tile which are laid adjacent in a direction perpendicular to the direction of a gradient of the roof. The separate waterproof member includes a rectangular box that opens at a lower portion thereof with respect to the roof. The separate waterproof member has a trough section on one side. The trough section drains rainwater through a junction between each solar cell module and the one tile, which are laid adjacent in the direction perpendicular to the direction of the gradient of the roof. The gaps between the separate waterproof member, a side end portion of

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each solar cell module and the one tile are sealed in a watertight manner by seal members.

The applied references do not disclose or suggest the features of the present invention as defined by amended independent Claim 7. In particular, the applied references do not disclose or suggest "laying a separate waterproof member" and "said separate waterproof member comprises a rectangular box that opens at a lower portion thereof *with respect to the roof*," as required by amended independent Claim 7.

As noted in the Action, the Examiner alleges that the word "lower" is relative in so much that FIG. 4 and 11 of Yoshitaka show "a box that opens at a lower portion" when viewed upside down. However, amended independent Claim 7 of the present invention requires a rectangular box that opens at a lower portion with respect to the roof. Hence, when FIG. 4 and 11 of Yoshitaka are viewed with respect to the roof, the rectangular box of waterproof connection member 7, located between solar cell holding tiles A and B, opens facing upwards.

Therefore, Yoshitaka does not disclose or suggest every feature of the present invention as required by amended independent Claim 7, and the ancillary reference Ouchida does not remedy the deficiencies of Yoshitaka.

Claim 13:

As defined by amended independent Claim 13, a method of laying solar cell modules together with tiles on a roof panel includes laying a solar cell module on the roof at upper edges of the tiles laid on the roof so that an upper portion of a ridge-side of the tiles overlaps an eaves-side of the solar cell module. Fastening strips are arranged to prevent solar cell modules from being blown off between a lower portion of the eaves-side of the solar cell module and the upper portion of the

ridge-side of the tiles. The fastening strips engage the eaves-side of the solar cell module and the ridge-side of the tiles with each other. The fastening strips are engaged to the lower portion of the eaves-side of the solar cell module and the upper portion of the ridge-side of the tiles, as well as engaged to the roof and the upper portion of the ridge-side end of one tile. The fastening strips include a rectangular main part and two rising parts that extend from the main part from two sides of the main part.

The applied references do not disclose or suggest engaging “fastening strips to the roof and the upper portion of the ridge-side of said tiles,” as required by amended independent Claim 13.

In FIG. 2, Hiroshi discloses a fastener 8 that holds and secures the periphery of solar cell module 4 to roofing tile 2. As shown in FIG. 8, 10 and 13, fastening strips 8 and 38 are not engaged to the roof. Rather, nail 12b of FIG. 8, which is separate and distinct from the fastening strip, secures the roofing tile 2 to the roof 10. Fastening strips 8 and 38 of Hiroshi is structurally different and does not function to secure to the roof.

Furthermore, FIG. 7 of Hiroshi discloses a concave portion 3 provided on an upper surface of a roof-tile base member 2. Fixing members 8 are provided and press and fix the peripheral parts of the solar cell module 4 together in order to prevent solar cell module 4 from floating upwards when, for example, a gust of wind blows. Solar cell module 4 is set in the concave portion 3 of the roof-tile base member 2. However, Hiroshi does not disclose a member corresponding to fastening strip 81 of the present invention. Instead, fixing member 8 of Hiroshi corresponds to the “eaves-side fastening strips 75” and “ridge-side fastening strips 76” disclosed in FIG. 21A and 21B, respectively.

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In contrast, the present invention discloses in FIG. 22A a fastening strip 81 with fastening screw 88 that engages the lower portion of the eaves-side of the solar cell module 61 and the upper portion of the ridge-side of the tiles 93, as well as the roof panel through the ridge-side end of one tile. As disclosed in paragraph [0126-0127] and [0130] of applicant's specification, fastening strip 81 has a fastening hole 86 that holds a fastening screw 88 driven into roof panel 90 with each fastening strip 81 secured to roof panel 90. Hiroshi does not disclose this feature.

Moreover, dependent Claims 14-16 are amended to further clarify distinctions between the present invention and the applied references.

Thus, Hiroshi does not disclose or suggest these features of the present invention as required by amended independent Claim 13. Since Hiroshi does not disclose or suggest each and every element of independent Claim 13, the applied reference cannot anticipate Claims 14-16 dependent thereon.

Applicant respectfully submits that independent Claim 17 is allowable for at least the same reasons as discussed above with reference to amended independent Claim 13 and such allowance is respectfully requested.

Since the cited reference fails to disclose, teach or suggest the above features recited in amended independent Claims 1, 7, 13 and 17, these references cannot be said to anticipate nor render obvious the invention which is the subject matter of those claims. Accordingly, Claims 1, 7, 13 and 17 are believed to be in condition for allowance and such allowance is respectfully requested.

The remaining claims depend directly or indirectly from independent Claims 1, 7, 13 and 17 and recite additional features of the present invention which are neither disclosed nor fairly suggested by the applied references and are also

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believed to be in condition for allowance and such allowance is respectfully requested.

Conclusion

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (310) 785-4721 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,
HOGAN & HARTSON L.L.P.

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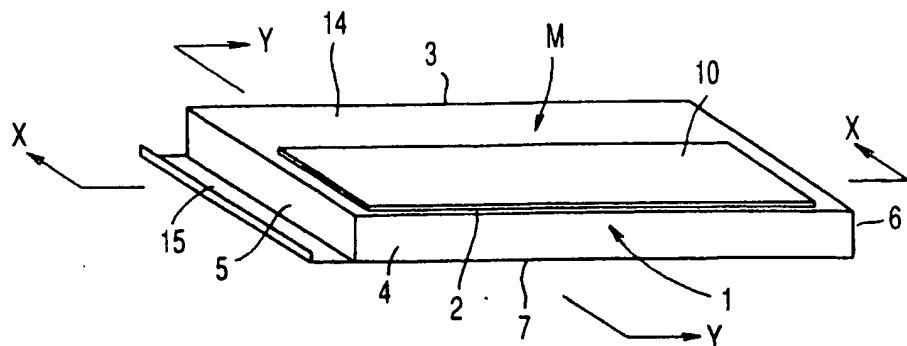


FIG. 1

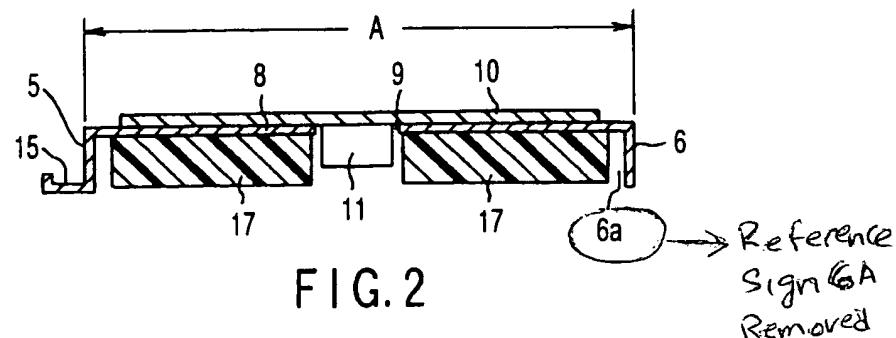


FIG. 2

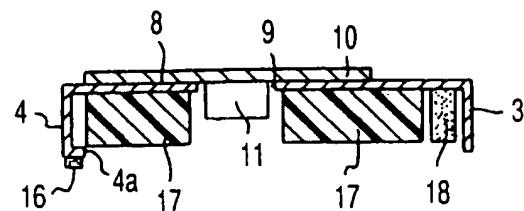


FIG. 3